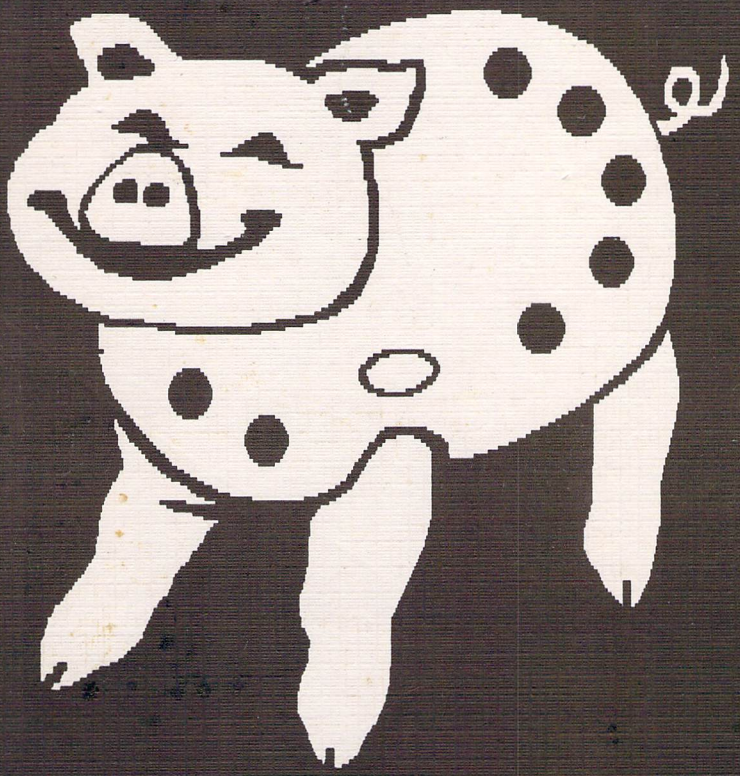
Ham It Up!



Finally... Ham It Up!
displays and prints
all 4096 Amiga colors!

DELTA GRAPHICS

Ham It Up!

Developed by
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2163

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Introduction

As an Amiga owner, you already have access to 4096 colors and a multitude of powerful image creation programs. Now HamItUp! offers you a long-awaited complete color reference guide for use with all Amiga paint programs. By allowing you to print out all 4096 colors on your own printer, it takes the guesswork out of color matching and selection. Video animation artists can use HamItUp!'s color charts to achieve smooth background blends and avoid unwanted "fringe" effects (see tutorials). Desktop Publishing artists can eliminate hours of frustrating trial-and-error color matching. HamItUp! provides you with RGB values for each color in an easy-to-read format.

Backup Copy

HamItUp! is not copy protected, and you are encouraged to make a backup copy of both the HamItUp! and the HamItUp!Extras disk for your own use, while filing away the originals for safekeeping. Please do not make copies of this product to hand out to others, as you will be in violation of copyright laws. Please refer to your computer owner's manual for instructions on making a backup copy.

Hard Disk Installation

It is possible to install HamItUp! to any place on your hard drive that it will fit. In the Workbench, simply make a duplicate of an Empty drawer in the desired location, then rename it HamItUp! Insert the HamItUp! original disk into your floppy drive and double click on the disk icon. Drag the three icons, named HamItUp!, Charts and Data to the HamItUp! drawer on your hard drive. All the necessary files are included in these three directories.

Next you must add a line to your s/startup-sequence to inform the program of the presence of these files on your hard drive. If you made the HamItUp! drawer in the root directory of DH0:, then

the line would read as follows:

C:assign HamItUp!: dh0:HamItUp!

Next, if you would like to hard drive install SuperBlue and the utility Superview 3.0 to view it, you should first insert the HamIt-Up!Extras disk into your floppy drive and double click on the disk icon. Drag SuperBlue and ViewSuperBlue to the same drawer as HamItUp! on your hard drive. Similarly, you must now add a line to your s/startup-sequence to inform the program of the location of these files. It would read as follows:

C:assign HamItUp!Extras: dh0:HamItUp!

Finally, you must make sure that the Workbench 1.3 version of "Graphic Dump" is in your SYS:Utilities directory, otherwise you will not be able to print the charts from the HamItUp! program. If this file is missing, you can find it on the HamItUp! disk in the appropriate location.

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Loading the Program

Insert the HamItUp! disk in any drive. Double click on the disk icon labeled "HamItUp!". Four icons will appear.

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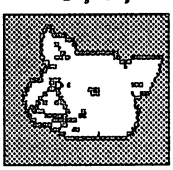
Viewing the Color Charts

To view the color charts, double click on the "HamItUp!" program icon. The Main Menu will be displayed on the screen. Here you will see 18 buttons, which all operate with a single click of the left mouse button (LMB). The buttons function as follows:



"0","1","2"...."15": These "pig" buttons (see below left) represent the 16 color charts (for more details, see **READING THE COLOR CHARTS** on page 4). Clicking on any of these buttons will take you to the corresponding color chart, where you will see three "direction" buttons. They function with a single click of the left mouse button, as follows:

(<) Back one chart
(M) Back to Main Menu
(>) Forward one chart

SLIDESHOW: Automatically shows each color chart for 5-10 seconds (depending on your hardware), then returns you to the Main Menu. A single click on the right mouse button (RMB) pauses the Slideshow; another click resumes it. A single click on the LMB quits the SlideShow at any time and returns you to the Main Menu.

QUIT: Gets you out of HamItUp! and back to the Workbench.

****

Reading the Color Charts

HamItUp! has 16 different color charts containing 256 colors each. Each chart is a 16x16 grid, with the **RED** values (0-15) increasing from left to right, and the **GREEN** values (0-15) increasing from top to bottom. These color values are constant throughout all 16 charts. The **BLUE** value increases one step with *each chart*, so that as the chart number increases, the charts become "bluer". Therefore, in this HamItUp! version, **the chart numbers "0" to "15" correspond to the BLUE value of the chart.**

Finding the RGB values of a particular color is an easy process. Simply locate the desired color on a chart, go to the top of the row to find the **RED** value, go to the left of the row to find the **GREEN** value, and look at the bottom of the chart to find the **BLUE** value (which, as we said, is also the chart number).

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Printing the color charts

Select and view the color chart you would like to print, as detailed above. Under the **PROJECT** menu, pull down **PRINT CHARTS** with the RMB. Under **PRINT CHARTS** you will be offered four different sizes you can use in printing the charts (see Figure 1, page 5). The sizes, described below, are relative to the WIDTH of the page on your printer:

TINY	A1	=	(1/4 size)
SMALL	A2	=	(1/2 size)
MEDIUM	A3	=	(3/4 size)
LARGE	A4	=	(full size)

Notice also the keyboard equivalents (A1, A2, A3, A4) which can be used to select the print sizes. To print a 1/2-size color chart, for example, you would depress the right "Amiga" key and the "2" key at the same time.

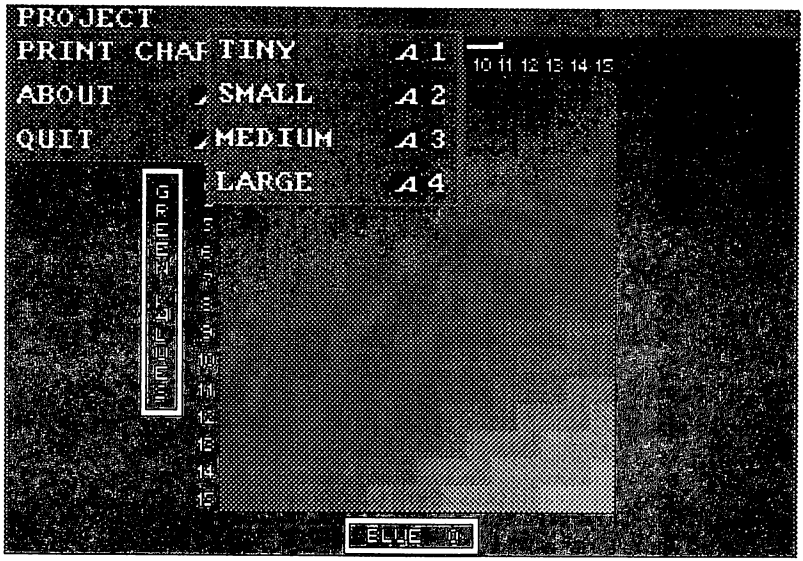

FIGURE 1

In order to print, make sure that your preference settings are correct, and that GraphicDump from the Workbench 1.3 disk is in your utilities drawer (see ReadMeHD).

Once you've selected the size you want to print, wait 10 seconds for printing to begin. This program does multitask, but it is not advisable to do so while printing, since GraphicDump prints whatever is displayed on the screen at the moment. (Refer to your Workbench 1.3 manual for more information about GraphicDump).

We have provided a black background with each chart for maximum contrast. If you wish to change the color of the background to gray or white in order to save ink, you may do so by loading each chart into a HAM paint program (such as DigiPaint 3 or PhotonPaint) and making your color changes there. Due to the complexities of HAM paint programs, we strongly advise that you make your changes on a backup copy of HamItUp!, and leave your original copy untouched. After making the color changes, you can print out the charts from the HAM program, or return to HamItUp! to print them out.

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Viewing and Printing SuperBlue

While the HamItUp! Charts/SlideShow provided you with a way to view and print the color charts individually, SuperBlue allows you to **view all the charts on one screen and print them together on one page.** Note, this is a very large HAM file and requires the new 1 meg Agnus chip to view. You may need to reboot with the HamItUp! disk if your precious RAM is already being used for left-over assigns from other programs. Please be patient during loading.

Double click on the SuperBlueShow icon located in the View-SuperBlue drawer on the HamItUp!Extras disk. Once the file has appeared on the screen, you will notice that holding down the Left Mouse Button allows you to scroll around the large bitmap. Clicking the Right Mouse Button or depressing the ESC key quits the program and returns you to the Workbench.

It is possible to print this SuperBitMap since it is a HAM file. You can load it into DigiPaint 3 or PhotoLab or one of the IFF printing utilities and print from there. You can also import it to Professional Page 1.3 or any other DTP program or wordprocessor that will accept a HAM file of that size and output to their respective output destinations (for example, B&W postscript, color postscript, 4-color separations, HP PaintJet or any Amiga Preferences-supported printer). The output retains its ability to be considered the "definitive color test" for any of these output results. This one file will supply you with a tremendous amount of color information.

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TOWARD BETTER BLENDS: The Tutorials

One of the major reasons for using the computer to create artwork is the wonderful lack of brushes to clean, dirty rags to dispose of, time spent waiting for paint to dry, etc. The time and energy thus saved can be applied to the creative process. To this end, we offer the following tutorials on creating better blends. Learning to make a blend from an informed viewpoint is much more efficient than creating one out of thin air!

Just as an oil painter must learn to mix, blend, apply and view the colors s/he is using, a computer artist should learn the same disciplines on a computer. The time invested in doing the exercises in these tutorials will help the artist to achieve the color effects s/he desires. The resulting blends tend be smoother than sixteen-color blends created by most other means.

The set-up of the HamItUp! charts (see **Reading the Color Charts**, page 4) provides the artist with a multitude of blends to choose from. Let us call any row of 16 colors a **blend row**. The sixteen charts have a total of 256 horizontal blend rows, plus an equal number of vertical blend rows, plus two diagonal blend rows per chart, for a grand total of 544. This means that the artist has at her/his fingertips **over five hundred 16-color blend combinations!** Add to this the 1000+ blend rows that will be available on future HamItUp! products (see **Future Products**, page 15), and your creative possibilities are almost endless.

The color concepts presented here through the HamItUp! charts are guaranteed to improve your understanding of RGB color interactions as they appear on the screen. These concepts are universal to all machines that use RGB displays. Systems using 8-bit color displays from palettes of 16 million colors can also benefit from this approach since the efficient use of colors will allow them to create more effects. If you have 256 colors to work with on the screen and use up 100 of them to do a sky blend, then another 100 to do a checkerboard floor blend, then you have only 56 colors left to create the ubiquitous spheres. If you can achieve a much smoother blend with a minimal number of colors, you have gained potential—a potential that you may have thought achievable only on a 24-bit-display machine.

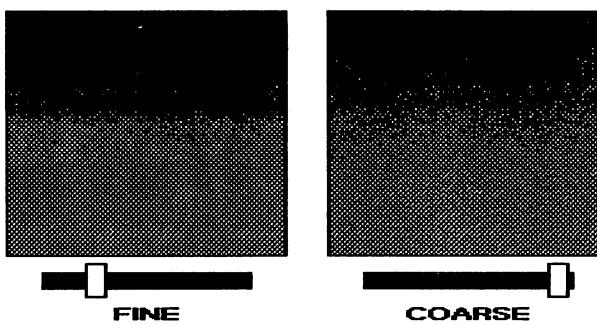
This tutorial is as much a lesson in RGB-color relationships as a tutorial, with step-by-step instructions guiding you through the concepts. The ultimate goal of this tutorial is one of a process. By executing the following steps, you should be able to understand the process of RGB-color manipulation on the Amiga.

First of all, let us ask some fundamental questions. In blends, what makes some color combinations smooth, and others coarse? How does dithering affect these color relationships? What is dithering? How do you change dither patterns? Are all dither patterns alike? What is a spread? What is a range? How do we use dithers, spreads and ranges to achieve the effects that we desire?

Let's focus on dithers first. A **dither** is a spattered mix of two colors used to produce the effect of an intermediate color. When used in a multicolor blend, dithering optically mixes the transitions from one color to another to help fill in the intermediate shades.

Not all dithers are alike. The resolution of the spattering determines the apparent smoothness or graininess of a dither pattern transition. The finer the resolution, the smoother the blend. The coarser the resolution, the coarser the blend (see Figure 2). Most paint programs have slider controls to control the resolution of the dither (not to be confused with the resolution of the picture, 640x400, 320x200 etc.). Sixteen colors can produce the appearance of many more colors on the screen through dithering.

FIGURE 2: DITHER RESOLUTIONS



The colors used in dithers are called the **range**. A sixteen-color blend has a sixteen-color range. In most paint programs, it is possible to have a range with any number of steps from two to thirty-two, or even sixty-four in DeluxePaint III. The default palette in DeluxePaint has a 12-color gray-scale range. Each color in this range can be changed independently of the other. Similarly, the number of colors and position of each within the range can be adjusted to the desires of the user (unlike the default DigiPaint 3 color palette, which has a fixed 16-color range—more on this later).

Just as large dithering steps affect the coarseness of a blend, large color steps will have similar effects. Accordingly, if you tried to make a sixteen-color blend from green to red, the overall color transition would not be as smooth as a blend of pink to red, providing of course that you have the correct pink with the correct red.

The process of creating the intermediate colors in a range is called spreading. The result of a paint program mixing, for example, the 14 intermediate colors between the endpoints in a 16-color range is called the **spread**.

The spread is automatically created in DigiPaint 3 when you enter the beginning and ending RGB values into the range color strip. DeluxePaint, on the other hand, allows you to define the number of colors in your spread through the range command as mentioned above. (Incidentally, the color ranges of the default palettes in both DeluxePaint III and DigiPaint 3 can be enhanced to look smoother through several slight color adjustments, which will be mentioned further on.)

Now that you understand the terms dither, spread and range, we suggest that you leave this tutorial and practice making some spreads and ranges, then set various dither patterns and see the effects that you can achieve. The programs you are using supply the necessary information needed to experiment. If you have already experimented and are familiar with the potentials of these tools, continue with the tutorial. The HamItUp! exercises are intended to enhance the skills that you already have. You will need DeluxePaint II or III to do this section of the tutorial.

Let us assume that you haven't seen the HamItUp! charts yet. At this point you should view them. Enter HamItUp! by double clicking on the HamItUp! program icon. Notice the smooth brown to red transition behind the pig on the scrolling title page. A brush from that IFF file has been included in the MyFavoriteBlends drawer

on the HamItUp!Extras disk, and is also defined numerically on the first Blend Worksheet (page 16, "Pig Background"). That blend was created using the principles discovered in the HamItUp! charts.

Once in the Main Menu screen, click on SlideShow. In a few seconds you will see the first chart labeled "Blue 0". This chart has a zero Blue-value. All of the colors were created using Red and Green values only. The Red values range from 0 to 15 as they go from left to right. Similiarly, the Green values range from 0 to 15 as they go from top to bottom. The second chart labeled "Blue 1" has had one increment of Blue added to it, and the third chart 2 increments of Blue, etc. As the charts dissolve from one to another, you can see the subtle dithered addition of the Blue increment. This effect illustrates what is actually happening when you add one Blue-value to each of these RGB color charts.

Also observe the smooth transitions of color within each chart from left to right and from top to bottom. In this smooth transition lies the answer to most of our blend problems. All of these colors are changing one value, on the RGB scale, at a time. For example, each color shares a constant Green and Blue value with the color horizontally adjacent to it, and the Red value increases or decreases by one at a time. Logic tells us that this color transition will be smooth. And similarly with the colors as they move from top to bottom. *The smoothest color transitions occur when two of the RGB values remain constant, while the third changes by one increment.* Let's call this discovery the **HamItUp! Color Principle**. Now let's try it!

Quit HamItUp! and load DeluxePaint in any 32-color resolution. Insert the HamItUp!Extras Disk in one of your drives. Under the **Brush** menu, pull down **Load**. When the requestor box appears, select the drive containing the Extras disk, then select the directory named MyFavoriteBlends. From this list, select TutorialBrush.1, and load the brush.

Next, under the **Picture** menu pull down **Change Color** and select **Use Brush Palette**. This will change the brush to a range of colors created using the **HamItUp! Color Principle**. Notice the smooth, even transitions of this blend. Click the brush image onto the screen (or be creative and swirl it around a bit).

Now hit the "P" key or pull down the palette command to bring up the palette box. In the last two vertical rows, you can see the colors of our brush range. Now we're going to see how Deluxe-

Paint spreads the colors between our endpoints. Click on the last color box , click on **Spread**, then click on the first color in our range (top color, next to last row). Now notice the difference between the HamItUp! range and this one. Click on OK to exit the palette box.

Now the brush is in the range created by DeluxePaint, which is obviously much less smooth than HamItUp!'s. If you would like to switch back and forth between the two palettes in order to compare them, follow these steps: under **Picture**, once again pull down **Change Color** and select **Use Brush Palette**. Do the same again, but this time select **Restore Palette**. Now if you hit the "a" key (*not* the "Amiga" key) repeatedly, you can toggle back and forth between the Brush Palette (from HamItUp!) and the DeluxePaint palette.

You may follow this same procedure to view and compare Tutorial Brush.2 and 3. In all of them you will find a distinct difference between *ours* and *theirs*. While some of their blends could be described as whimsical or downright funky (and definitely have their place in certain types of artwork), we strive to provide a more controlled approach to creating blends. In all fairness, we must state that DeluxePaint does seem to spread the blends much more evenly when using colors at the extreme ends of the scale, i.e., colors defined by the numbers "0" or "15". It also seems to perform well with blends picked at a 45° angle from the HamItUp! charts.

Let's look at the technical reasons behind our differences. When DeluxePaint does a spread between two endpoint colors, the intermediate colors often do not maintain two of the RGB values constant. It violates the **HamItUp! Color Principle**. Let's review this process in more detail.

Let's go back to where we left off with TutorialBrush.1. Make sure you are in the Brush Palette, then bring up the palette box. Click onto the first color in our range (top color, next to last row) and look at its RGB values. Fill in these values on the Blend Worksheet on page 17. Click on the second color in the range and write down these RGB values on line 2. Continue this procedure for all 16 colors in the range. Your list should match the one in Figure 3 on page 12.

Now look at the RGB values on the list. You will notice that the Blue and Green values of these colors are all identical, and that the Red values progress from 0 to 15. This range provides a smooth,

FIGURE 3

Tutorial Brush.1

	R	G	B
1.	0	12	11
2.	1	12	11
3.	2	12	11
4.	3	12	11
5.	4	12	11
6.	5	12	11
7.	6	12	11
8.	7	12	11
9.	8	12	11
10.	9	12	11
11.	10	12	11
12.	11	12	11
13.	12	12	11
14.	13	12	11
15.	14	12	11
16.	15	12	11

FIGURE 4

DPaint Spread

	R	G	B
1.	0	12	11
2.	1	12	9
3.	1	12	7
4.	2	12	6
5.	3	13	5
6.	3	13	3
7.	5	13	4
8.	8	13	5
9.	10	14	5
10.	11	14	6
11.	13	14	7
12.	14	14	8
13.	14	13	8
14.	15	12	9
15.	15	12	10
16.	15	12	11

even transition from blue to pink by following the **HamItUp! Color Principle.**

Next, let's look at the way DeluxePaint spreads this range. Do a spread once again between the first and last colors of the range, and note the RGB values of all these colors on another chart on page 17. This list should look like the one in Figure 4.

Now examine this list. Although the Blue value (11) and the Green value (12) of the first and last colors are identical, they do not remain constant throughout the range. In fact, they meander significantly, causing the appearance of colors such as green and yellow in a range that should be blue-to-pink. Notice, too, that the red values do not increase in a systematic manner from 0 to 15; they also jump around and wreak havoc in your palette.

What's an artist to do? HamItUp! gives you the tools to create your own custom blends in the cases (such as the one above) where the blends provided by the paint program are not satisfactory. Our discussion has led us to the fact that the smoothest blends are achieved when the first and last colors in the range share two constant RGB values. Obviously, then, the HamItUp! charts will be very useful in locating two such endpoints. Let's try creating a blend now.

View the charts on the HamItUp! disk again, and choose a horizontal or vertical row that you would like to use for a blend. Now fill in all the RGB values on one of the supplied Blend Worksheets (page 17), or draw a line through the corresponding row on one of the Blend SpeedSheets (page 25).

Go back into DeluxePaint and bring up the palette box. Click

on each color in the range and adjust each RGB value, using the RGB sliders, to make them match perfectly the values specified by the row selected from the HamItUp! chart. When this is completed, click on OK to exit the palette box.

Next, we need to specify the type and resolution of the dithering. First click the LMB on one of the colors in your newly-created range. Next, click the RMB on the **Fill** tool to bring up the "fill type" requestor, and select one of the "gradient" arrows above the dither slider bar. Now you should see the dithered transition from your first color to the last. Slide the dither bar back and forth to see the effects of various dithering degrees. Once you have found a dither direction and texture that you like, click OK. Now select any solid shape and draw it on the screen. Voila! C'est magnifique!

Continue to experiment with blend suggestions from any row in HamItUp!, vertical or horizontal, as long as you use the precise RGB values that it specifies. As you create gradient-filled shapes with these colors, you can grab them and save them out as brushes, to be used at a later date in any paint program including HAM paint programs, with no unexpected "fringe" problems. (**Fringing** is the mysterious appearance of unrelated colors in HAM paint program blends, caused by failure to adhere to the **HamItUp! Color Principle**). Try contour-gradient-filling some irregular shapes in DeluxePaint with these colors, to see what surprisingly smooth transitions will result; you'll be pleased!

(Using the **HamItUp! Color Principle**, even the default DeluxePaint color palette can be improved. Check the RGB values in the gray range of that color palette, and you'll find a spot where the values jump by two steps in an otherwise one-step grayscale range. Correct this jump and watch the range smooth out!)

The same color-selection and gradient-creation methods can be similarly applied to other paint programs, though not entirely the same. Nevertheless, the color effects will be as consistent as the charts illustrate.

****

The second tutorial brings us to one of the fantastic phenomenons of the Amiga: HAM paint programs, specifically DigiPaint 3. The HamItUp! charts were originally created in DigiPaint 3, so the almost fringe-free color transitions are reconstructable in this paint program. Ranges are controlled by the first and last color selections only. That is, in DigiPaint 3 you *cannot* change the colors in the middle of the range as you can in DeluxePaint. So if you need this control in order to create a desired blend, we suggest that you create it in DeluxePaint (or other non-HAM paint program) and import it to DigiPaint 3 (or other HAM paint program) via pictures or brushes.

In this exercise we will improve the cleanliness of the default yellow to red range found in Digipaint 3. The first thing we must do is to paint a 2" x 4" filled rectangle at the top of the screen, with the range mode selected. Next, we must access the color slider bar controls by clicking on the color palette button (so intuitively presented to us by the artistic/productive genius of Jim Sachs).

Now click on the box containing the first color of the range and notice the RGB values of that color. They are R14, G13 and B2 (yellow). Next click on the box containing the last color of the range and note those RGB values. They are R15, G0 and B0 (red). These color endpoints do not make HamItUp! sense.

Correct the yellow RGB values to read R15, G15, B0, then make another similar-sized filled rectangle below the first one drawn so that you can compare the two. Click on the magnify tool to get a better view and you will notice that on the default range, there is a slight green tinge to the blend, whereas on the new and improved HamItUp! version, there is a nice, simple and clean, yellow-to-red color transition.

How does that grab you? Simple enough? The mixing of color in the computer's RGB world is no more complex than using oil paints on canvas or watercolors on paper. Some of those skills can take many years to perfect. RGB color relationships can also take years to fully exploit. Numerous Amiga artists have spent many hours learning the most efficient and creative ways to build palettes. It is the intention of HamItUp! to help all Amiga artists to cut down on that color-comprehension training time, and get right to work.

****

Future Products

This first HamItUp! product displays all 4096 Amiga colors via 16 charts having constant Red and Green values, and adding an increment of Blue to each chart (see **Reading the Color Charts** on page 4 for more details). This provides a grouping of colors that increase in "blueness" as you proceed through the charts.

Future versions of HamItUp! will present the same 4096 colors in different groupings, i.e., with increasing "redness" and "greenness". In other words, the charts in the "Green" version will have constant Red and Blue values, and will increase by one increment of Green per chart; the "Red" version will have constant Green and Blue values, and will add increments of Red. These new arrangements together will provide 1088 additional 16-color blend combinations. With the 544 blends you already have in this version, you'll have a grand total of **1632 blends** at your fingertips. Not bad for someone who never has to rinse a paintbrush!

****

Blend Worksheets

The RGB values noted below represent the blends discussed in Tutorial One on pages 8-13, and included in the MyFavoriteBlends directory on the HamItUpIExtras disk. They are just a sampling of the many combinations that can be inspired by the color concepts presented in this manual.

The rest of these worksheets are intended to be used as a record of your blends and their corresponding RGB values. You are not necessarily limited to sixteen-color blends. For blends of fewer colors, just fill in as many spaces as you need. For more than sixteen colors, simply use two or more columns.

Prior to running out of worksheets we suggest that you make additional copies of one of the blank pages that follow.

Name Tutorial Brush.2

Values	R	G	B
1.	0	11	3
2.	1	11	3
3.	2	11	3
4.	3	11	3
5.	4	11	3
6.	5	11	3
7.	6	11	3
8.	7	11	3
9.	8	11	3
10.	9	11	3
11.	10	11	3
12.	11	11	3
13.	12	11	3
14.	13	11	3
15.	14	11	3
16.	15	11	3

Name Tutorial Brush.3

Values	R	G	B
1.	12	15	13
2.	12	14	13
3.	12	13	13
4.	12	12	13
5.	12	11	13
6.	12	10	13
7.	12	9	13
8.	12	8	13
9.	12	7	13
10.	12	6	13
11.	12	5	13
12.	12	4	13
13.	12	3	13
14.	12	2	13
15.	12	1	13
16.	12	0	13

Name Pig Background

Values	R	G	B
1.	12	2	1
2.	12	2	2
3.	12	2	3
4.	12	2	4
5.	12	2	5
6.	12	2	6
7.	12	2	7
8.	\		/
9.	\		/
10.	\	/	
11.		\ /	
12.		A	
13.	/	\	
14.	/		\
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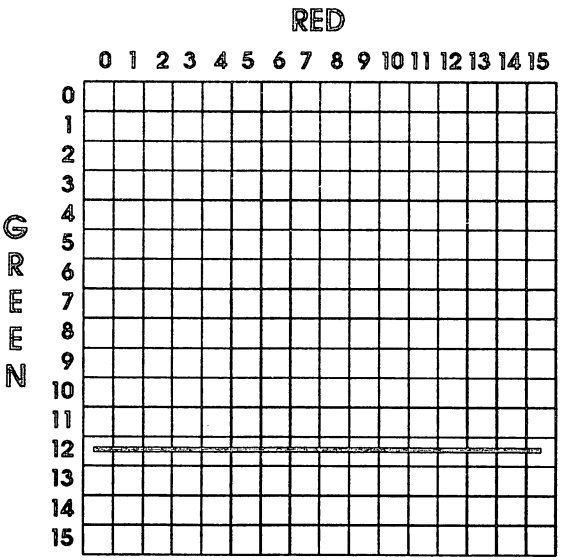
Blend SpeedSheets

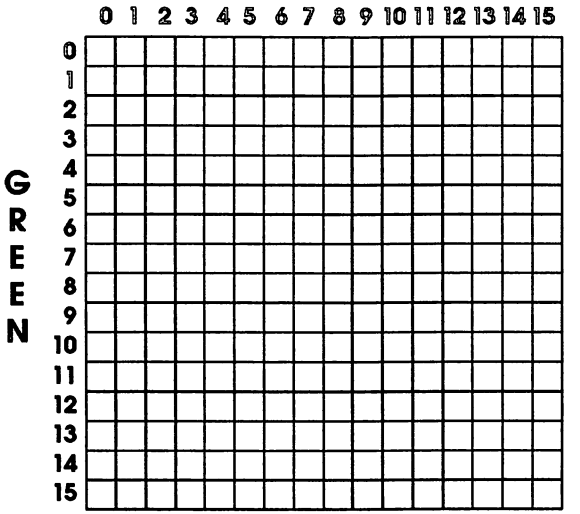
These SpeedSheets are a faster alternative to using the standard HamItUp! Blend Worksheets. To use them, simply fill in the BLUE CHART #____ space with the number of the chart, then draw a line through the colors desired (see sample chart below). To find the RGB values use the same method that you used to find them on the screen charts (see Reading the Color Charts, page 4).

Prior to running out of SpeedSheets we suggest that you make additional copies of one of the blank pages that follow.



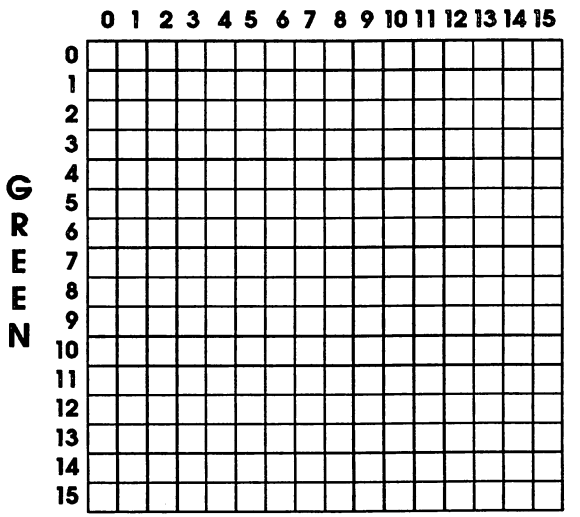
Blend Name:__Tutorial Brush.1__ BLUE CHART #__11__

RED



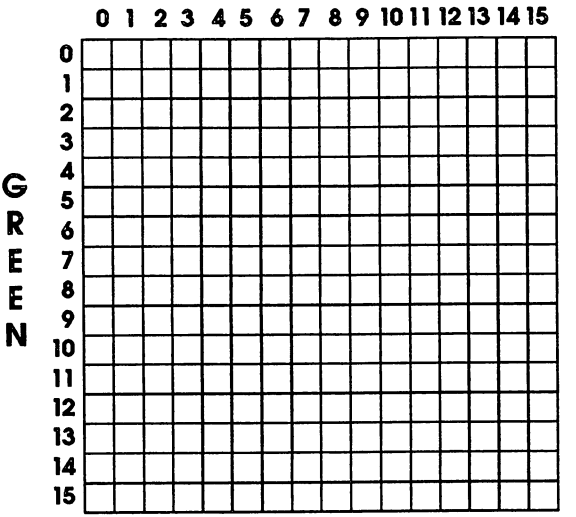
Blend Name:_____ BLUE CHART #_____

RED



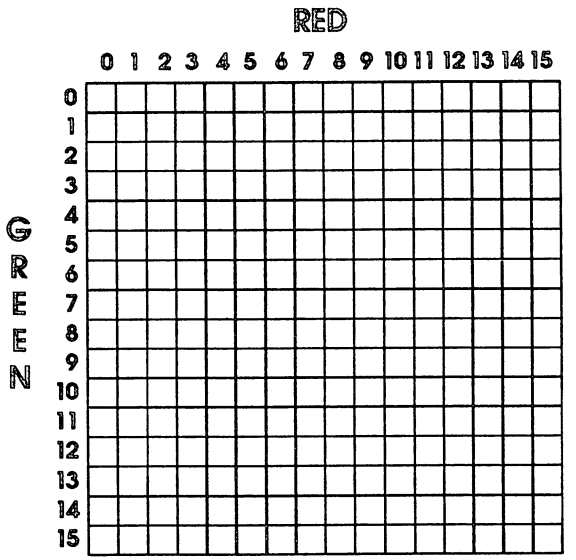
Blend Name:_____ BLUE CHART #_____

RED



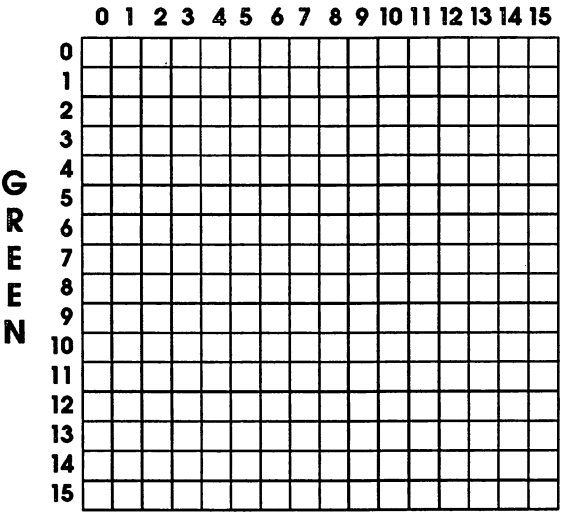
Blend Name:_____ BLUE CHART #_____

RED



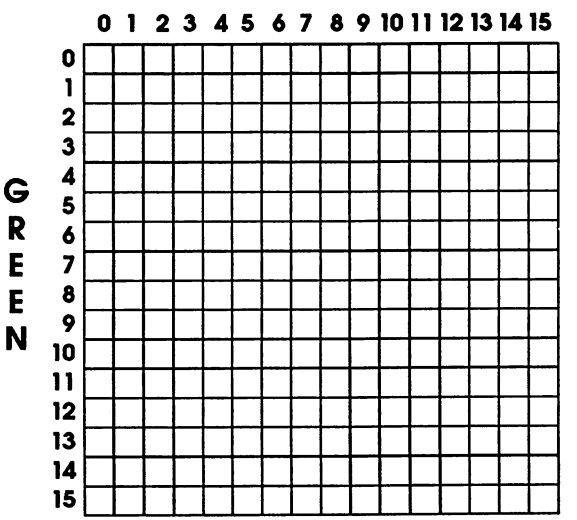
Blend Name:_____ BLUE CHART #_____

RED



Blend Name:_____ BLUE CHART #_____

RED



Blend Name:_____ BLUE CHART #_____

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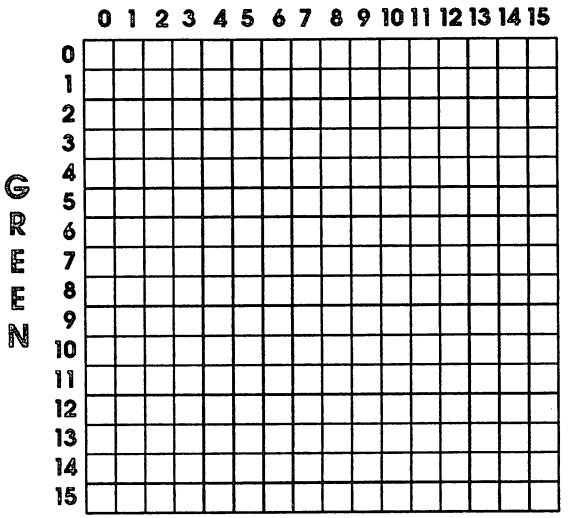

Blend Name:_____ BLUE CHART #_____

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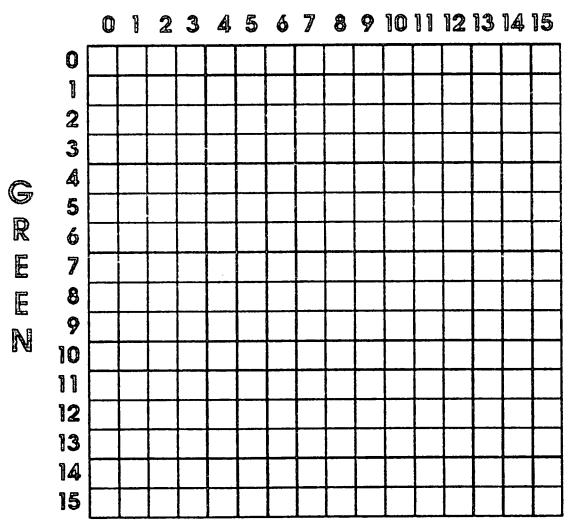

Blend Name:_____ BLUE CHART #_____

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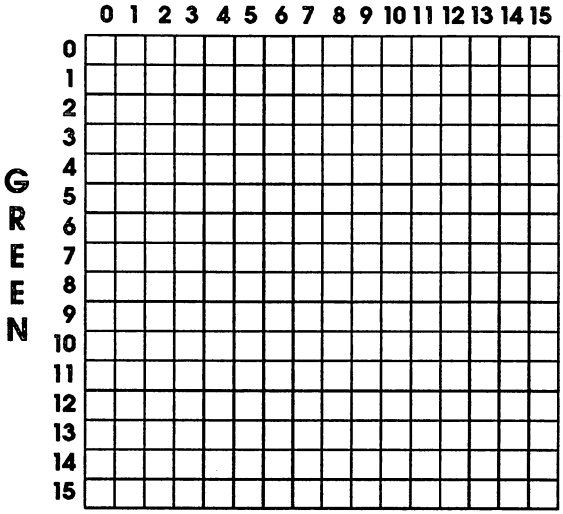
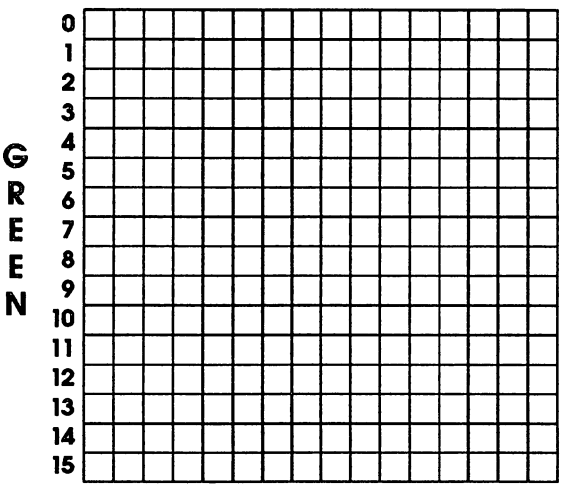
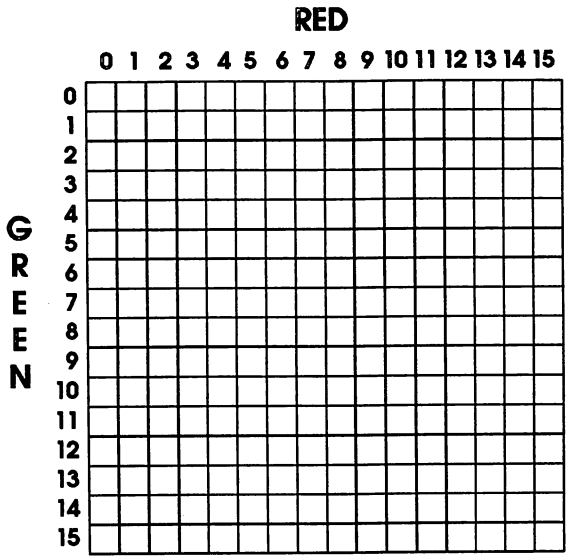


Blend Name:_____ BLUE CHART #_____

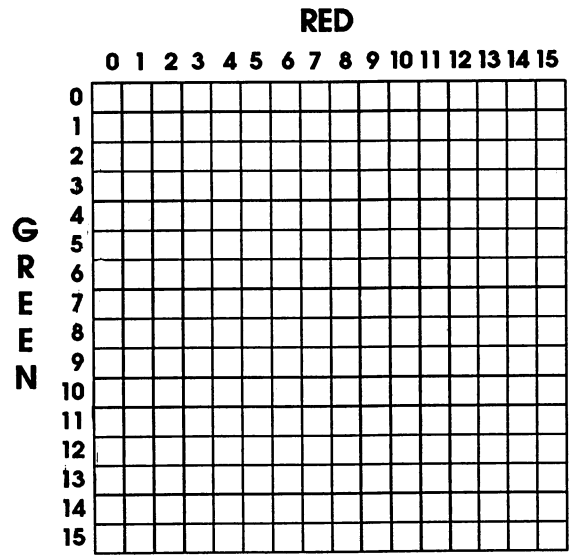
RED



Blend Name:_____ BLUE CHART #_____



Blend Name:_____ BLUE CHART #_____



Blend Name:_____ BLUE CHART #_____

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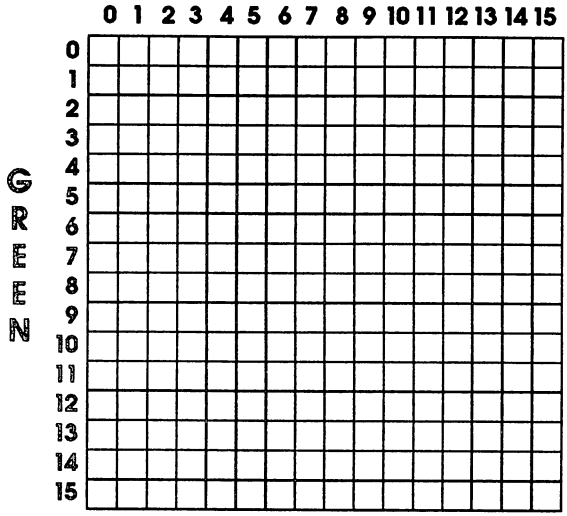

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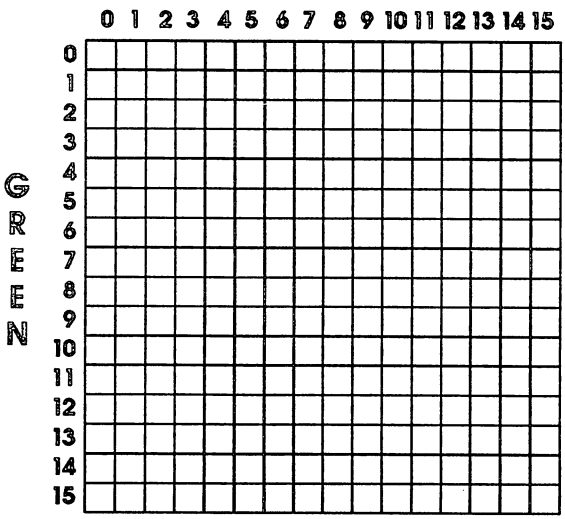

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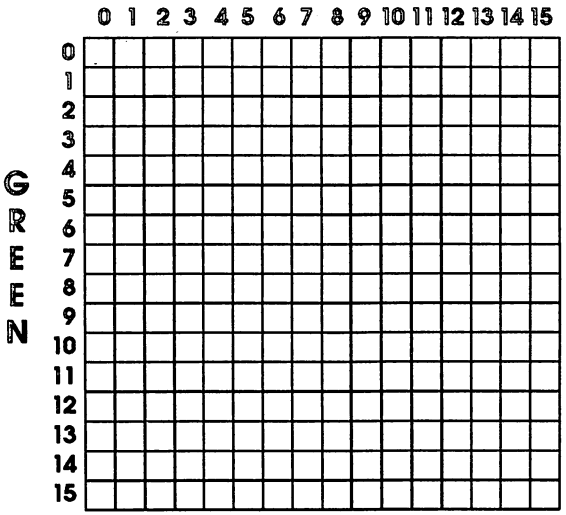

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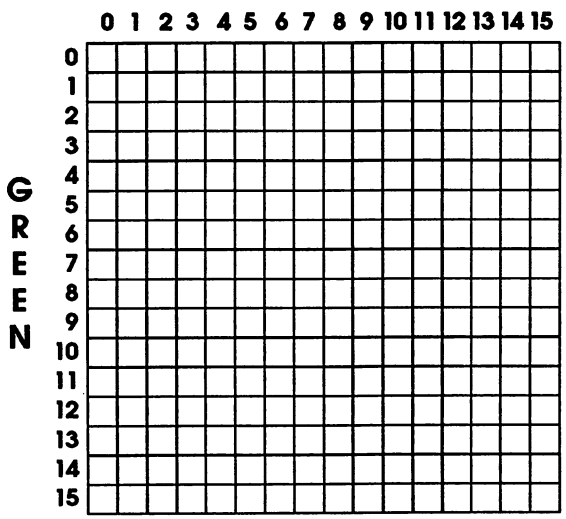

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Credits

First and foremost, we would like to credit Josef Albers and Albert Munsell for bringing to life the tradition of the "Interaction of Color" and the "Munsell Color Charts". Most of Fran's color-related investigations have been inspired by the depth of their explorations. Initially, these HamItUp! charts were created to allow us to print them and adjust our color palettes to the desired printed hues. Fortunately, in the tradition of these two great artists, it did not end there.

Secondly, we would like to thank Carlos Caicedo of Glass Canvas Productions for all his entrepreneurial advice and encouragement. Also, a hearty thanks to Brian Williams, Jim Weiner and the entire gang at the Massachusetts College of Art Amiga Computer Lab for introducing Fran to the Amiga and its remarkable potential. In addition, we would like to thank all our illustrious advisers at the Boston Computer Society Amiga Users Group, for without their constant vigilance as to the latest and greatest things going on in the Amiga community, there would probably be no HamIt-Up! . And let's not forget Denise Bousquet, who provided moral support throughout this entire endeavor, and worked tirelessly to produce this manual.

The charts were originally created in DigiPaint 3 as an 800x800 Superbitmap named SuperBlue, using DOS commands via the Arexx port. The user interface was created in CanDo (Innovatronics). The SlideShow sequence was created in The Director (The Right Answers Group) and uses the projector program to run it. A PD program named Superview 3.0 ©1989 by David Grothe is used to display the SuperBlue SuperBitmap, and the PD program PowerPacker ©1989 by Nico Francois was used to compress the HamIt-Up! program (see docs on HamItUp!Extras disk).

Ham It Up!

- The **definitive color reference guide**—displays and prints all 4096 Amiga colors
- Prints on any Amiga-compatible color printer
- An invaluable aid in achieving smooth **BLENDS** in most Amiga paint programs (includes tutorials)
- Avoid "fringing" effects in creating backgrounds for **VIDEO** animations
- **DTP** artists avoid hours of frustrating and costly color-matching experiments
- No HAM paint program required to view or print
- Easy to install on your hard drive

▲▲▲▲▲▲▲▲▲

- Sixteen HAM charts of 256 colors each
- RGB values given for each color
- Includes the SuperBitmap "SuperBlue"

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- Requirements:
  - Any AMIGA computer with at least 1meg RAM
  - SuperBlue requires 1 meg Agnus chip to view and a SuperBitmap HAM paint program to print

DELTA GRAPHICS

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(617) 254-1506

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